

WE CLAIM:

1. An x-ray generating device for scanning an object under inspection comprising:
at least one addressable field emission cathode, the cathode comprising a
5 substrate and a nanostructure-containing material comprising carbon nanotubes; and
at least one anode target.

2. The device of claim 1, wherein the nanostructure-containing material comprises single-walled carbon nanotubes, multi wall nanotubes, or mixtures thereof.

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3. The device of claim 1, wherein the cathode comprises a substrate material is at least partially covered with the nanostructure-containing material coating layer

4. The device of claim 1, further comprising an adhesion-promoting interlayer
15 between the substrate and the nanostructure-containing material coating layer.

5. The device of claim 1, further comprising a gate electrode.

6. The device of claim 1, comprising a plurality of anode targets.

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7. The device of claim 1, wherein the device is portable.

8. The device of claim 1, wherein the cathode comprises an array of nanostructure-containing material elements, each of the nanostructure-containing elements being individually addressable.

5 9. The device of claim 1 wherein the at least one cathode and the at least one anode are contained within a vacuum chamber.

10. The device of claim 1, further comprising a moveable stage.

10 11. The device of claim 1, wherein the cathode emits electrons without the assistance of the heater.